

[54] METHOD OF GENERATING CYLINDRICAL MAGNETIC DOMAINS

[75] Inventor: **Joh H. Myer**, Woodland Hills, Calif.

[73] Assignee: **Hughes Aircraft Company**, Culver City, Calif.

[22] Filed: **Apr. 8, 1974**

[21] Appl. No.: **458,750**

[52] U.S. Cl. **340/174 TF**

[51] Int. Cl. **G11c 11/14**

[58] Field of Search **340/174 TF, 174 SR**

[56] References Cited

UNITED STATES PATENTS

| | | | |
|-----------|--------|----------------|------------|
| 3,662,359 | 5/1972 | Genovese | 340/174 TF |
| 3,727,197 | 4/1973 | Chang | 340/174 TF |

Primary Examiner—Stanley M. Urynowicz, Jr.
Attorney, Agent, or Firm—W. H. MaCallister, Jr.;
 Donald C. Keaveney

[57]

ABSTRACT

There is disclosed a method and apparatus for the formation of cylindrical uniaxial domains or magnetic bubbles in a sheet of magnetic material characterized by a preferred direction of magnetization out of the plane of the sheet. The method uses a magnetically soft amorphous ferrite flux concentrator with a semi-toroidal configuration having one end of the toroid pointed to a 90° included angle in order to apply perpendicularly to the plane of the sheet of magnetic material or along the easy axis thereof, a pulsed field which rises intermittently to a high intensity with fast rise and fall time, which is an extremely localized field surrounded by steep field gradients confined to one portion of the area of the magnetic material, and which has field gradients which are curved in the plane of the material at the localized portion to provide a pinching off action for bubbles formed by excess domain wall area. The method is particularly suitable for use with such materials having high magnetic anisotropy values and high domain wall energy such as is possessed by orthoferrite crystal platelets.

5 Claims, 4 Drawing Figures

